TW2

UNIVERSITY OF BOLTON

GREATER MANCHESTER BUSINESS SCHOOL

BA (HONS) ACCOUNTANCY

SEMESTER TWO EXAMINATIONS 2022/2023

FINANCIAL MANAGEMENT

MODULE NO: ACC6003

Date: Tuesday 9 May 2023 **Time: 10.00 – 1.00**

INSTRUCTIONS TO CANDIDATES:

There are FOUR questions on this paper.

You MUST answer ALL questions.

Silent non-programmable calculators may be used.

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Question 1

Quebec is an international manufacturing company based in the United Kingdom and has subsidiaries throughout eastern Asia.

Quebec has recently purchased some good on credit from a company in Asia and is required to make a payment in dollars of $850,000 in 6 months' time. The management accountant has decided to enter into a money market hedge to mitigate the transaction risk.

The current spot rate is $1,154 - $1.157 = £1

Money Market rates per year

	Borrowing	Lending
USA	4%	3%
UK	5%	4%

The Management Accountant as also provided the following information: -

An item cost $4,000 in the United States. The spot exchange rate is $1,24 = £1. Inflation in the United States is expected to 5% and 3% in the United Kingdom.

Required:

a) **Calculate the amount of GBP £ required using the Money Market Hedge.**
(10 Marks)

b) **Using the law of one price and Purchasing Power Parity Theory, calculate the £ value of the item today.**
(5 Marks)

c) **Calculate the exchange rate in one years' time.**
(5 Marks)

d) **Critically discuss the limitations of the Purchasing Power Parity Theory**
(5 Marks)

(25 Marks)

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Question 2

Georgian Limited is planning to invest some of excess cash it generates. The management accountant has reported that each month Georgian generates £30,000 excess cash.

The company intends to transfer these funds into short term investment which would earn 2% per annum. Each time the company transfers into the account it incurs a transaction fee of £30.

Georgian Limited has sales of £40m for the previous year. Receivables days are 50 days and are financed using an overdraft costing 5% per year.

The company also uses the Miller-Orr Cash Management Model and has provided you with the following information:-

I. Minimum cash balance £26,000
II. Transaction costs £20 per transaction
III. Standard deviation of cash flows £3,000 per day – variance of cash flows = (standard deviation to the power 2 = £9,000,000 per day.
IV. Interest rate 0.03% per day

Required:

(a) Using the Baumol Cash Model, calculate the optimum amount of cash to be transferred each time.

(8 Marks)

(b) Calculate the receivables balance and annual financing costs for receivables.

(4 Marks)

(c) Calculate using the Miller – Orr Model.

I. The spread
II. The return point
III. Upper limit **(9 Marks)**

d) Critically evaluate why profitable companies may still fall into liquidation.

(4 Marks)

(25 Marks)

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Question 3

Accrington Ltd has 5 million ordinary shares of £1 each (Nominal Value). The management accountant has provided you with the following information:

- Cumulative dividend Share Price £1.70
- Dividend due to be paid £0.15.
- Five years ago, the dividend was £0.12.
- The company has 6% redeemable loan of £0.75m nominal value with a current market value cum interest of £104. The loan notes will be redeemed in 5 years at a premium of 5%
- Corporation tax is 25%

The treasurer of Accrington Ltd has also provided you with the following information: -

- The current average market return being paid on risky investment is 14% compared to 8% on government gilts. Accrington Ltd beta factor is 0.8.

Required:

a) Calculate by Market values the Weighted Average Cost of Capital (WACC)

(15 marks)

(b) Using the Capital Asset Pricing Model (CAPM) calculate the required return of an equity investor in Accrington Ltd

(5 marks)

(c) Critically discuss the assumptions of the Capital Asset Pricing Model.

(5 Marks)

(25 Marks)

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Question 4

Darlington Aerospace is considering investing in a potential project (A) with the following projected forecasts:

Time	0	1	2	3
Initial Investment (£M)	(3,000)			
Disposal Proceeds (£M)				600
Demand (Millions of Units)		10	12	6

The selling price per unit is expected to be £220 and the variable cost £60 per unit. Both of these figures are given in today's terms.

Tax is paid at 30%, of year after the accounting period concerned.

Working Capital is required to equal 12% of annual sales. This facility will need to be in place at the start of each year.

Capital allowances are available at a rate of 25% reducing balance.

The real rate of return is 7.8 with general inflation expected to be 5%.

Selling price is expected to inflate by 4% and variable cost by 5% per year.

Darlington Aerospace's Management Accountant has produced some calculation for two other projects: -

	Initial Investment	Annual Cashflow	NPV
Project B	£1,000,000	£250,000	£350,000
Project C	£540,000	£90,000 PA	£150,000

The Management Accountant as also asked for you to undertake a sensitivity analysis for Project D. The following information as been made available to you:

Project D will require an investment of £210,000. Sales volumes will be 4,500units each year for four years at a sales price of £55 per unit. Variable costs will be £40 per unit. The discount factor for Project D will be 8%.

Question 4 continued over the page

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Question 4 continued

Required:

a) **Calculate the Net Present Value of the Investment**

(13 Marks)

b) **Calculate the Profitability Index for Project B and C**

(2 Marks)

c) **Calculate the Sensitivity of Project D:**

I. **Initial Investment**
II. **Selling price per unit**
III. **Variable cost per unit**

(5 Marks)

d) **Critically evaluate the risks inherent in advising senior managers of capital Expenditure projects in times of rising inflation.**

(5 Marks)

(25 Marks)

End of Examination

Please turn over for formulae and tables

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FORMULAE AND TABLES

Economic order quantity

$$= \sqrt{\frac{2C_oD}{C_H}}$$

Miller-Orr Model

$$\text{Return point} = \text{Lower limit} + \left(\frac{1}{3} \times \text{spread}\right)$$

$$\text{Spread} = 3\left[\frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{interest rate}}\right]^{1/3}$$

The Capital Asset Pricing Model

$$E(r_i) = R_f + \beta_i\,(E(r_m) - R_f)$$

The asset beta formula

$$\beta_a = \left[\frac{V_e}{(V_e + V_d\,(1-T))}\,\beta_e\right] + \left[\frac{V_d\,(1-T)}{V_e + V_d\,(1-T))}\right]\beta_d$$

The Growth Model

$$P_0 = \frac{D_0(1+g)}{(r_e - g)} \qquad r_e = \frac{D_0(1+g)}{(P_0)} + g$$

Gordon's growth approximation

$$g = br_e$$

The weighted average cost of capital

$$WACC = \left[\frac{V_e}{(V_e + V_d)}\right] K_e + \left[\frac{V_d}{V_e + V_d}\right] K_d\,(1-T)$$

The Fisher formula

$$(1 + i) = (1 + r)(1 + h)$$

Purchasing power parity and interest rate parity

$$S_1 = S_0 \times \frac{(1+h_c)}{(1+h_b)} \qquad F_0 = S_0 \times \frac{(1+i_c)}{(1+i_b)}$$

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Present value table

Present value of 1, i.e. $(1 + r)^{-n}$

Where r = discount rate

n = number of periods until payment

Periods (n)	Discount rate (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239

Periods (n)	Discount rate (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065

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Annuity table

Present value of an annuity of 1, i.e. $\frac{1-(1+r)^{-n}}{r}$

Where r = discount rate

n = number of periods until payment

Periods (n)	Discount rate (r)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606

Periods (n)	Discount rate (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.968	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675

End of formulae and tables